

REMARKS

The Official Action mailed April 20, 2007, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on November 14, 2003; April 21, 2004; June 8, 2004; November 10, 2004; March 14, 2005; May 6, 2005; October 20, 2005; February 8, 2006; February 8, 2006; February 22, 2006; October 11, 2006; and October 19, 2006.

A further Information Disclosure Statement was submitted on June 15, 2007 (received by OIPE June 18, 2007), and consideration of this Information Disclosure Statement is respectfully requested.

A further Information Disclosure Statement is submitted herewith, and consideration of this Information Disclosure Statement is respectfully requested.

Claims 1-18 were pending in the present application prior to the above amendment. Claims 1 and 13 have been amended to better recite the features of the present invention, claim 7 has been amended to correct a minor informality, and new claims 19-24 have been added to recite additional protection to which the Applicant is entitled. Accordingly, claims 1-24 are now pending in the present application, of which claims 1, 7, 13 and 19 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

The Official Action rejects claims 1 and 3-6 as obvious based on U.S. Patent No. 5,717,473 to Miyawaki. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application, as amended.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or

motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims, as amended. Independent claim 1 has been amended to recite that a second insulating film comprises polyamide, a third insulating film comprises polyimide, and a fourth insulating film comprises polyimide. For the reasons provided below, Miyawaki, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

The Official Action asserts that "figures 8A-8J of Miyawaki disclose a semiconductor device comprising: a channel region 3001 provided over a substrate 3 and between a source region and a drain region 1610; a gate electrode 1607 provided over the substrate 3 and provided adjacent to the channel region 3001 with a gate insulating film 1601 between the gate electrode 1607 and the channel region 3001; a first insulating film 1611 ...; a second insulating film 1612 ...; a drain electrode 1613 ...; a source electrode 1613 ...; a black matrix 1617 ...; a third insulating film ... 1616 ...; a fourth insulating film 1618 ...; and a pixel electrode 1619 ..." (pages 2-3, Paper No.

20070409). The Official Action concedes that "Figures 8A-8J of Miyawaki does not disclose the first insulating film and comprising resin to provide a first leveled surface over said first insulating film, a third insulating film comprising resin, a fourth insulating film comprising resin," asserts that "figure 12 of Miyawaki discloses the insulating film 1915 comprising a resin ('resin')" and asserts that "it would have been obvious ... to form the device of figure 8A-8J of Miyawaki with the limitation of figure 12 of Miyawaki in order to stick two layers together" (page 3, Id.).

However, Miyawaki does not teach or suggest an insulating film comprising polyamide and an insulating film comprising polyimide. Also, the Applicant respectfully submits that it would not have been obvious why one of ordinary skill in the art at the time of the present invention would have necessarily modified Miyawaki such that a second insulating film comprises polyamide, a third insulating film comprises polyimide, and a fourth insulating film comprises polyimide.

Since Miyawaki does not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

The Official Action rejects dependent claim 2 as obvious based on the combination of Miyawaki and U.S. Patent No. 5,550,070 to Funai. Please incorporate the arguments above with respect to the deficiencies in Miyawaki. Funai does not cure the deficiencies in Miyawaki. The Official Action relies on Funai to allegedly teach the features of dependent claim 2. Specifically, the Official Action relies on Funai to allegedly teach channel, source and drain regions in a semiconductor film comprising radial crystal grains of silicon (page 4, Id.). However, Miyawaki and Funai, either alone or in combination, do not teach or suggest the following features or that Miyawaki should be modified to include any of the following features: that a second insulating film comprises polyamide, a third insulating film comprises polyimide, and a fourth insulating film comprises polyimide. Since Miyawaki and Funai do not teach or suggest all the

claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

The Official Action rejects claims 7, 9-13 and 15-18 as obvious based on the combination of Miyawaki and U.S. Patent No. 5,414,547 to Matsuo. With respect to independent claim 7, the Applicant respectfully traverses the rejection because the Official Action has not made a *prima facie* case of obviousness. With respect to independent claim 13, the Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against claim 13 of the present application, as amended.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims.

Independent claim 7 recites second, third and fourth insulating films comprising polyimide, a drain electrode and a source electrode provided over the second insulating film comprising polyimide, the third insulating film comprising polyimide provided over the drain electrode and the source electrode, a black matrix provided over the third insulating film, the fourth insulating film comprising polyimide provided over the black matrix, and a pixel electrode provided over the fourth insulating film. For the reasons provided below, Miyawaki and Matsuo, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

The Official Action asserts that Figures 8A-8J of Miyawaki teach the features of claim 7 and references the same features of Miyawaki as noted above (page 5, Paper No. 20070409). The Official Action concedes that "Figures 8A-8J of Miyawaki does not disclose the first insulating film and comprising polyimide to provide a first leveled surface over said first insulating film, a third insulating film comprising polyimide, a fourth insulating film comprising polyimide," asserts that "figure 9 of Matsuo et al. discloses the insulating film 215 comprising a polyimide ('polyimide') to provide a leveled ('flatten') surface over the insulating film 215," and asserts that "it would have been obvious ... to form the device of figure 8A-8J of Miyawaki with the limitation of figure 9 of Matsuo in order to flatten the surface of the insulating film for the purpose of further improving the orienting characteristics of the liquid crystal" (pages 5-6, *Id.*). The Applicant respectfully disagrees and traverses the assertions in the Official Action.

Figures 8A-8J of Miyawaki appear to teach pixel electrode 1619 over phosphorus-doped glass (PSG) film 1618 over shading layer 1617 over PSG film 1616 over wiring layer 1613 over boron phosphorus-doped glass (BPSG) film 1612 over silicon nitride layer 1611 over gate 1607. Miyawaki does not teach or suggest that the second, third and fourth insulating films (BPSG film 1612 and the PSG films 1612 and 1618) should be modified to comprise polyimide.

Matsuo does not cure the deficiencies in Miyawaki. The insulating film 215 in Figure 9 of Matsuo, which may comprise polyimide, is formed over a data line 202a and

under a molybdenum silicide layer 216bb (conductive and light shielding layer that is a black matrix) and a pixel electrode 206. In present independent claim 7, the insulating film formed over a source electrode extending from a source line (which might arguably correspond to the data line 202a of the reference to Matsuo) and under a black matrix and a pixel electrode is the claimed third insulating film. Therefore, assuming sufficient motivation could be identified in the prior art, Matsuo, at best, arguably teach replacing PSG film 1616 of Miyawaki with insulating film 215 of Matsuo. However, Miyawaki and Matsuo, either alone or in combination, do not teach or suggest a second insulating film comprising polyimide and a fourth insulating film comprising polyimide.

Also, Matsuo appears to teach that only one insulating film, *i.e.* 215, may comprise polyimide. Claim 7 recites three insulating films comprising polyimide such that the drain electrode and the source electrode are provided over the second insulating film comprising polyimide, the third insulating film comprising polyimide is provided over the drain electrode and the source electrode, the black matrix is provided over the third insulating film, the fourth insulating film comprising polyimide is provided over the black matrix, and the pixel electrode is provided over the fourth insulating film. Miyawaki and Matsuo, either alone or in combination, do not teach or suggest these features.

Therefore, the Applicant respectfully submits that Miyawaki and Matsuo, either alone or in combination, do not teach or suggest second, third and fourth insulating films comprising polyimide, a drain electrode and a source electrode provided over the second insulating film comprising polyimide, the third insulating film comprising polyimide provided over the drain electrode and the source electrode, a black matrix provided over the third insulating film, the fourth insulating film comprising polyimide provided over the black matrix, and a pixel electrode provided over the fourth insulating film.

Independent claim 13 has been amended to recite second, third and fourth insulating films comprising polyimide. Please incorporate the arguments above

regarding claim 7. The Applicant respectfully submits that Miyawaki and Matsuo, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

Since Miyawaki and Matsuo do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

The Official Action rejects dependent claims 8 and 14 as obvious based on the combination of Miyawaki, Matsuo and Funai. Please incorporate the arguments above with respect to the deficiencies in Miyawaki and Matsuo. Funai does not cure the deficiencies in Miyawaki and Matsuo. The Official Action relies on Funai to allegedly teach the features of dependent claims 8 and 14. Specifically, the Official Action relies on Funai to allegedly teach channel, source and drain regions in a semiconductor film comprising radial crystal grains of silicon (page 9, Paper No. 20070409). However, Miyawaki, Matsuo and Funai, either alone or in combination, do not teach or suggest the following features or that Miyawaki and Matsuo should be modified to include any of the following features: that a second insulating film comprises polyimide, a third insulating film comprises polyimide, and a fourth insulating film comprises polyimide. Since Miyawaki, Matsuo and Funai do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

New claims 19-24 have been added to recite additional protection to which the Applicant is entitled. The Applicant respectfully submits that new claims 19-24 are in condition for allowance.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



Robert L. Pilaud  
Reg. No. 53,470

Robinson Intellectual Property Law Office, P.C.  
PMB 955  
21010 Southbank Street  
Potomac Falls, Virginia 20165  
(571) 434-6789